NUTRITIONAL ANEMIA

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ABSTRACT

Nutritional anemia is one of India's major public health problems. Nutritional anemia is a type of anemia that is caused by a deficiency of certain nutrients in the diet, particularly iron, vitamin B12, and folic acid. Symptoms of nutritional anemia can include fatigue, weakness, shortness of breath, and pale skin. Treatment typically involves increasing intake of the deficient nutrient through dietary changes or supplements. Causes of Iron Deficiency Anemia and nutritional anaemia are: Poor Dietary intake of iron resulting in deficiency of iron in the body and thus Iron deficiency anaemia (less intake of iron rich foods; Gender discrimination in food allocation in a family aggravates the situation. Low bio-availability of iron- Habitual intake of cereal based diet high in phytate and poor consumption of iron absorption enhancers such as vitamin C result in low availability of iron. Dietary deficiency of vitamins such as Folic Acid, Vitamin C, Vitamin B12. Once we are able to fully understand why anemia occurs, we can come up with a comprehensive plan to prevent it from happening.

Key Words: *Nutritional anemia, deficiency, poor diet, healthy balanced diet.*

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INTRODUCTION

Nutritional anemia is a type of anemia that is caused by a deficiency of certain nutrients in the diet, particularly iron, vitamin B12, and folic acid. These nutrients are essential for the production of hemoglobin, the protein in red blood cells that carries oxygen throughout the body. When the body does not have enough of these nutrients, it cannot produce enough hemoglobin, resulting in anemia. Nutritional anemia is particularly common in developing countries, where diets may be low in iron and other essential nutrients. It can also occur in people who have certain medical conditions that affect nutrient absorption or metabolism, such as celiac disease or pernicious anemia. Symptoms of nutritional anemia can include fatigue, weakness, shortness of breath, and pale skin. Treatment typically involves increasing intake of the deficient nutrient through dietary changes or supplements.

Kulkarni, M. V. et al (2012) Nutritional anemia is one of India's major public health problems. Adolescence is a vulnerable period in the human life cycle for the development of nutritional anemia. Anemia in adolescent girls contributes to maternal and foetal mortality and morbidity in future. Most of the health care services in India are for mother and child group. Nutritional anemia is one of India's major public health problems. Adolescence is a vulnerable period in the human life cycle for the development of nutritional anemia. Anemia in adolescent girls contributes to maternal and foetal mortality and morbidity in future. Most of the health care services in India are for mother and child group. Nutrition education along with nutritional supplementation and iron folic acid tablets should be provided to all girls. India is the one of the fastest growing youth populations in the world with an estimate 190 million adolescent in which 22% are girls. This is vulnerable period in the human life cycle for the development of nutritional anemia which affects both sexes and all age group . Particularly in developing countries, among adolescents, girls constitute a vulnerable for anemia. The prevalence of anemia among adolescent is 27% in developing country and 6% in developed countries. The main causes are family with limited recourses; the female child is more likely to be neglected and the added burden is menstrual blood last [normal/abnormal] precipitates the crises too[4]. Other associated risk factors for anemia are low intake of meat [fortified food with iron, frequent dieting, vegetarian eating styles, meals skipping, significant weight loss, heavy menstrual period, rapid growth, participation in endurance sports and intensive physical training.

Kumari, R., et al (2017).Iron Deficiency Anaemia (IDA) is a global health problem. It involves population of all age group and sex. But adolescent girls are more vulnerable to it. The reasons may be increased iron demand, menstrual blood loss, infection, worm infestation etc. To find the prevalence of iron deficiency and IDA in adolescent girls in a Tertiary Care Hospital. This cross-sectional study was done in the biochemistry clinical laboratory of Indira Gandhi Institute of Medical Sciences, Patna, Bihar, India for a period of six months (April 2015-October 2015). Haemoglobin estimation was done by Sahli's method. Total iron and Total Iron Binding Capacity (TIBC) estimation was done by Ferrozine method on fully automated chemistry analyser Olympus AU 400 with the reagent kit available in the market. Ferritin estimation was done by chemiluminescence immunoassay method, using Access 2 (Beckman Coulter). Out of 200 girls, 50% adolescent girls were found to be anaemic. Of the total, 43.3% were mildly, 3.3% were moderately and 3.3% were severely affected by anaemia. As prevalence of anaemia is 50%, it needs intervention for its prevention and control. This study will help in planning and implementation of the policy for prevention of iron deficiency and IDA.

Sinha, Amar & Karki, G & Karna, Keshab. (2012). In Nepal around 23% populations are in this age group. A retrospective hospital-based study was carried out in Biratna gar, Morang District to determine prevalence and distribution of anemia in terms of age and sex among adolescents population. Cyanmethaemoglobin method was used to determine the hemoglobin level. Out of 1047 subjects, 589 adolescent were selectively diagnosed as anemic. The overall prevalence of iron deficiency anemia among adolescent population was 56.3% with the distribution of males and females 26.8% and 29.4% respectively. Among anemic subject the incidence of anemia in male 47.7% and female 52.3%.Sufficiency and deficiency of iron makes the living of adolescents different as it affects their growth requirement and connective performance. Iron reserve in female result better reproductive outcome. In Nepal iron deficiency anemia among male adolescent was not been documented yet and this study reports closer to the female are found anemic which warrant further study

Chandrakumari, A. S et al (2019). Anemia accounts for a majority of the nutritional problem across the globe. The prevalence of anemia is inordinately higher among developing nations, because of low socioeconomic status and indigent access to the healthcare services. Adolescent period is signalized by marked physical activity and rapid growth spurt; therefore they need additional nutritional supplements and are at utmost risk of developing nutritional anemia. This study was carried out to find out the prevalence of anemia among adolescent girls.

This study was a cross-sectional study conducted among 255 adolescent girls. After getting informed consent from the subjects, the information regarding age, sociodemographic status, menstrual history, and short clinical details were recorded. Blood samples were collected and analysed using automated haematology analyser.

There is a significant relationship between anemia and socioeconomic status, dietary modification, nutritional supplementation, and helminth control; in addition, compliance with consumption of iron and folic acid tablets will prevent anemia to a great extent among adolescent girls.

Biradar, S.S et al (2012). India has the world's highest prevalence of iron deficiency anaemia among women, with 60 to 70 percent of the adolescent girls being anaemic. Adolescence is considered as a nutritionally critical period of life. The pre-pregnancy nutritional status of young girls is important as it impacts on the course and the outcome of their pregnancy. Hence, the health of adolescent girls demands special attention. It was observed that the prevalence of anaemia was high in late adolescents (15-19yrs) as compared to that in the early adolescents (10-14yrs). A majority of the girls had mild anaemia. The prevalence of anaemia was considerably high among the girls who belonged to the low socio-economic status. A high prevalence of anaemia was found among the adolescent girls, which was considerably high in the late adolescents. There was a significant association of anaemia with the socio-economic status. The prevalence of anaemia was high in girls who belonged to the low socio-economic status.

CAUSES AND EFFECTS OF ANAEMIA

Common causes of anaemia There are many different types of anaemia. They could be nutritional or non - nutritional causes (heavy/chronic bleeding, infections, genetic disorders or cancers).

There are many causes of anemia, but some of the leading causes include:

1. Iron deficiency: This is the most common cause of anemia worldwide. Iron is essential for the production of hemoglobin, so when the body does not have enough iron, it cannot produce enough hemoglobin, resulting in anemia.
2. Vitamin deficiency: Deficiencies in vitamin B12 and folate can also cause anemia, as these vitamins are essential for the production of red blood cells.
3. Chronic diseases: Certain chronic diseases, such as kidney disease, cancer, and HIV/AIDS, can cause anemia by affecting the production or destruction of red blood cells.
4. Blood loss: Anemia can also be caused by blood loss, such as from heavy menstrual periods, gastrointestinal bleeding, or injury.
5. Inherited disorders: Some inherited disorders, such as sickle cell anemia and thalassemia, can cause anemia by affecting the production or structure of red blood cells.
6. Pregnancy: Pregnant women are at risk for anemia due to increased blood volume and the demands of the growing fetus.
7. Other factors: Other factors that can contribute to anemia include alcoholism, malnutrition and certain medications.

KINDS OF ANEMIA

The types of anemia are based on what causes them. They include:

- **Anemias from when red blood cells get broken down too fast**, called haemolytic anaemias. They include:
  - autoimmune haemolytic anemia: when the body's immune system destroys its own red blood cells
  - inherited haemolytic anaemias: these include sickle cell disease, thalassemia, G6PD deficiency, and hereditary spherocytosis
- **Anemia from bleeding.** This can happen due to bleeding from an injury, heavy menstrual periods, the gastrointestinal tract, or another medical problem.
- **Anemia from red blood cells being made too slowly**, such as:
  - aplastic anemia: when the body stops making red blood cells from an infection, illness, or other cause
  - iron-deficiency anemia: when someone doesn't have enough iron in their diet
  - anemia B12 deficiency: when someone doesn't get enough B12 in the diet or the body can't absorb the B12

Nutritional anaemia, particularly, is the most widely prevalent form of anaemia in the country.

Causes of Iron Deficiency Anemia and nutritional anaemia are:

• Poor Dietary intake of iron resulting in deficiency of iron in the body and thus Iron deficiency anaemia (less intake of iron rich foods; Gender discrimination in food allocation in a family aggravates the situation.

• Low bio-availability of iron- Habitual intake of cereal based diet high in phytate and poor consumption of iron absorption enhancers such as vitamin C result in low availability of iron • Dietary deficiency of vitamins such as Folic Acid, Vitamin C, Vitamin B12

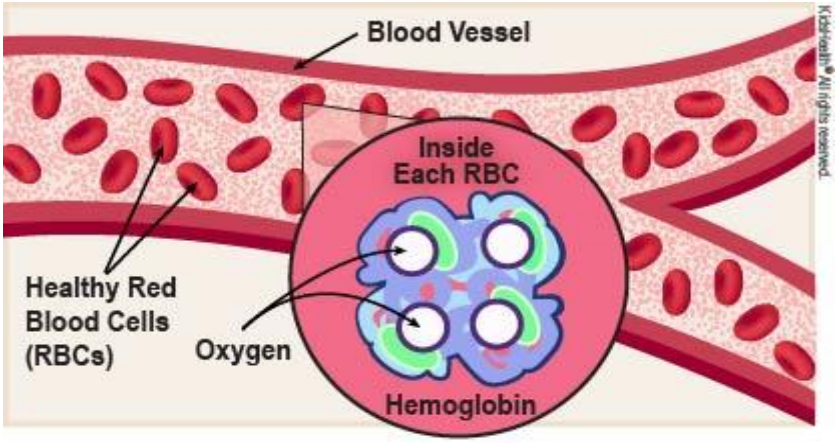
Non nutritional causes of anaemia:

• Accelerated increase in requirement for iron during adolescent period

• Hookworm infestation

• Infections such as Malaria

- Loss of blood in case of heavy menstrual bleeding.
- Teenage marriage and early pregnancy – Teenage pregnancy places double burden on the physically and physiologically immature body of girls and results in increasing the likelihood of anaemia, maternal mortality, pregnancy complications and birth of low-birth-weight babies.



PREVENTION OF ANEMIA

Once we are able to fully understand why anemia occurs, we can come up with a comprehensive plan to prevent it from happening. Here are the four leading causes of anemia:

- decreased or abnormal red blood cell production (such as heredity spherocytosis, thalassemia)
- physical loss of red blood cells (such as bleeding from the bowel or stomach, heavy periods or childbirth, cancer, ulcers, and gastritis)
- destruction of red blood cells (such as sickle cell anemia and artificial heart valves)
- decreased numbers of red blood cells (due to iron deficiency, vitamin deficiency, bone marrow, and stem cell problems)

In Australia, iron deficiency is the leading cause of Anemia affecting more than one million people.

Prevention of anemia depends on the underlying factors that cause it and its severity. Mild cases of anemia usually get better with some quick lifestyle changes, whereas severe cases may need ongoing treatment and can be fatal if left untreated. It's hard to treat or prevent anemia that is caused by a genetic disease, similarly, you cannot avoid anemia that is caused due to heavy blood loss. If your body is deficient in or unable to absorb and utilise certain nutrients, such as iron or vitamin B12, making diet changes can help manage your levels and prevent anemia. You may also look into iv therapy to get the nutrients you need.

Following are the ways to prevent anaemia.

1. Eat a balanced diet that includes iron-rich foods such as red meat, poultry, fish, beans, lentils, tofu, and fortified cereals and grains.
2. Include foods that are high in vitamin C, such as citrus fruits, tomatoes, and bell peppers, which can help your body absorb iron.
3. Eat foods that are high in vitamin B12, such as meat, fish, and dairy products, or take a B12 supplement if you are vegan or vegetarian.
4. Eat foods that are high in folate, such as leafy green vegetables, citrus fruits, beans, and fortified cereals and grains.
5. Avoid drinking tea or coffee with meals, as these can interfere with iron absorption.
6. Consider taking an iron supplement if you are at risk for anemia or have been diagnosed with iron-deficiency anemia.
7. Get regular check-ups with your doctor to monitor your iron levels and overall health.
8. If you have a medical condition that affects nutrient absorption or metabolism, work with your healthcare provider to manage your condition and prevent anaemia

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